

DOCKET NO: 255898US0PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :
JANN SCHMIDT, ET AL. : EXAMINER: CHANG
SERIAL NO: 10/501,925 :
FILED: JULY 28, 2004 : GROUP ART UNIT: 1794
RCE FILED: NOVEMBER 13, 2007
FOR: IMPROVED LIGHT-GUIDING :
BODIES AND METHOD FOR THE
PRODUCTION THEREOF

APPEAL BRIEF

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

This is an appeal of the Final Rejection dated May 12, 2008 of Claims 1-20. A Notice of Appeal is **submitted herewith**.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Roehm GmbH & Co. KG, having an address Kirschenallee, 64293 Darmstadt, Germany.

II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' legal representative and the assignee are aware of no appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF THE CLAIMS

Claims 1- 20, all the claims in the application, stand rejected and are herein appealed.

IV. STATUS OF THE AMENDMENTS

No amendment under 37 CFR 1.116 has been filed.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

A summary of the claimed subject matter, as claimed in sole independent Claim 1, is mapped out below, with reference to page and line numbers in the specification added in **[bold]** after each element.

Claim 1 is drawn to a light-guide body which has at least one light-entry surface and at least one light-exit surface, the ratio of the light-exit surface area to the light-entry surface area being at least 4, comprising at least one light-guiding layer, **[page 1, lines 3-8]** wherein the light-guiding layer comprises at least 60% by weight, expressed in terms of the weight of the light-guiding layer, of polymethyl methacrylate and from 0.0001 to 0.2% by weight, expressed in terms of the weight of the light-guiding layer, of spherical particles with an average diameter in the range of from 0.3 to 40 μm , **[page 3, lines 23-29]** and the light-exit surface of the light-guiding layer is provided with structurings, which structurings are capable of extracting light and have a depth in the range of from 0.1 μm to 1,000 μm . **[page 14, lines 6-12]**

VI. GROUNDS OF REJECTION

Ground (A)

Claims 1-19 stand rejected under 35 U.S.C. § 103(a) as obvious over US 5,881,201 (Khanarian).

Ground (B)

Claim 20 stands rejected under 35 U.S.C. § 103(a) as obvious over Khanarian in view of JP 2000-13677 (JP '677).

VII. ARGUMENT

Ground (A)

Claims 1-19 stand rejected under 35 U.S.C. § 103(a) as obvious over Khanarian. That rejection is untenable and should not be sustained.

Khanarian discloses backlighting light pipes for display applications which comprise a light source and a light guide, wherein the light guide consists of a sheet which has one or more edges where the light from a cold cathode fluorescent lamp (CCFL) enters the light guide and a surface where the light, after passing through the light guide, exits, wherein the light guide comprises a transparent polymer and a light scattering material (column 2, line 46ff).

Khanarian does not disclose “structurings,” as that term would be understood herein.

In the Final Rejection, the Examiner interprets the term as a roughened surface structure functioning as a diffuser for an improved light uniformity or luminous distribution, relying on the specification herein at page 14, line 11 and 29-30. The Examiner’s interpretation is not accurate. The meaning of structurings is defined in the specification herein at page 14, first full paragraph, which definition, along with a depth range, is part of Claim 1.

In the Final Rejection, the Examiner relies on the disclosure at column 4, lines 5-43 and column 5, line 1 as disclosing a light-exit surface provided with structurings. However, there is no such disclosure in these portions or anywhere else in Khanarian.

In the Final Rejection, the Examiner finds that Khanarian discloses that a diffuser may be used, and “mechanically roughened diffuse scattering plates (diffusers) are widely used for improved light uniformity,” relying on the disclosure in Khanarian at column 2, line 37 and column 3, lines 61-66. The Examiner further finds that “[Khanarian]’s diffuser reads on the structurings of the claimed invention, and a workable depth of the roughened surface is deemed to be an obvious routine optimization to one skilled in the art of light displays.”

In reply, the disclosure at column 2, line 37 of Khanarian refers to an embodiment other than the light pipe disclosed therein, not a separate layer over the light pipe. See column 7, lines 17-27. (The terms “light diffusion plate” and “light diffusion screen” are used interchangeably in Khanarian.)

To the extent Khanarian contemplates a diffuser as a separate layer over their light pipe, even though one is not necessary therein (column 3, lines 61-62), no disclosure of structure for a diffuser is disclosed. Nor obviously is there any disclosure or suggestion in Khanarian to create structurings in their light pipe *per se*. The light pipe exemplified in Figure 3B of Khanarian, which requires intimate contact of the respective surfaces (column 7, lines 8-12, suggests that the surfaces are flat. One skilled in the art would not include structurings.

Claim 2

Claim 2 is separately patentable. Khanarian neither discloses nor suggests a ratio of the light-exit surface area to the light-entry surface area is at least 20. The Examiner relies on the Figs. 3A and 3B therein and finds that such a ratio would be arrived at through routine optimization for optimum light scattering properties.

In reply, unlike the facts in *In re Andersen*, 743 F.2d 1578, 223 USPQ 378 (Fed. Cir. 1984), no added written description to support a rejection is found in Khanarian. Indeed, the

Examiner's reliance on Figs. 3A and 3B is improper. *Compare In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977); *In re Chitayat*, 408 F.2 475, 478, 161 USPQ 224, 226 (CCPA 1969) (Arguments based on mere measurement of patent drawings are of little value in absence of description in specification of relative dimensions); and *In re Wilson*, 312 F.2d 449, 454, 136 USPQ 188, 192 (CCPA 1963).

Nor has the Examiner established a nexus between the ratio and optimum light scattering properties.

Claim 6

Claim 6 is separately patentable. Since Khanarian neither discloses nor suggests anything about structurings *per se*, it follows that Khanarian neither discloses nor suggests a light-exit surface having uniform structurings.

Claim 7

Claim 7 is separately patentable. Since Khanarian neither discloses nor suggests anything about structurings *per se*, it follows that Khanarian neither discloses nor suggests a light-exit surface having nonuniform structurings.

Claim 8

Claim 8 is separately patentable. Since Khanarian neither discloses nor suggests anything about structurings *per se*, it follows that Khanarian neither discloses nor suggests structurings in point form and/or in line form.

Claim 15

Claim 15 is separately patentable. In Khanarian, as shown in Figs. 3A and 3B, a reflector sheet is located on a surface that is perpendicular to the light-entry surface.

Claim 19

Claim 19 is separately patentable. Since Khanarian neither discloses nor suggests anything about structurings *per se*, it follows that Khanarian neither discloses nor suggests a depth of from 1 μm to 100 μm .

For all the above reasons, it is respectfully requested that this rejection be REVERSED.

Ground (B)

Claim 20 stands rejected under 35 U.S.C. § 103(a) as obvious over Khanarian in view of JP '677. That rejection is untenable and should not be sustained.

JP '677 has been relied on for a disclosure of barium sulfate particles. However, JP '677 does not remedy any of the above-discussed deficiencies in Khanarian.

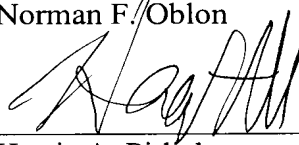
Accordingly, it is respectfully requested that this rejection be REVERSED.

VIII. CONCLUSION

For the above reasons, it is respectfully requested that all the rejections still pending in the Final Rejection be REVERSED.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Harris A. Pitlick
Registration No. 38,779

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)

NFO:HAP\

CLAIMS APPENDIX

Claim 1: Light-guide body which has at least one light-entry surface and at least one light-exit surface, the ratio of the light-exit surface area to the light-entry surface area being at least 4, comprising at least one light-guiding layer, wherein the light-guiding layer comprises at least 60% by weight, expressed in terms of the weight of the light-guiding layer, of polymethyl methacrylate and from 0.0001 to 0.2% by weight, expressed in terms of the weight of the light-guiding layer, of spherical particles with an average diameter in the range of from 0.3 to 40 μm , and the light-exit surface of the light-guiding layer is provided with structurings, which structurings are capable of extracting light and have a depth in the range of from 0.1 μm to 1,000 μm .

Claim 2: Light-guide body according to Claim 1, wherein the ratio of the light-exit surface area to the light-entry surface area is at least 20.

Claim 3: Light-guide body according to Claim 1, wherein the thickness of the light-guiding layer is in the range of from 2 to 100 mm.

Claim 4: Light-guide body according to Claim 1, wherein the particles are made of barium sulfate, plastic, or both barium sulfate and plastic.

Claim 5: Light-guide body according to Claim 4, wherein the plastic particles are present and comprise crosslinked polystyrene.

Claim 6: Light-guide body according to Claim 1, wherein the light-exit surface has uniform structurings.

Claim 7: Light-guide body according to Claim 1, wherein the light-exit surface has nonuniform structurings.

Claim 8: Light-guide body according to Claim 1, wherein the structurings of the light-exit surface are in point form and/or in line form.

Claim 9: Light-guide body according to Claim 1, wherein the light-guide body comprises at least 90% by weight, expressed in terms of the weight of the light-guide body, of polymethyl methacrylate.

Claim 10: Light-guide body according to Claim 1, wherein the particles have an average diameter in the range of from 1.4 to 10 μm .

Claim 11: Light-guide body according to Claim 1, wherein the light-guiding layer has from 0.0005 to 0.08% by weight, expressed in terms of the weight of the light-guiding layer, of spherical particles.

Claim 12: Light-guide body according to Claim 1, wherein the polymethyl methacrylate of the light-guiding layer has a refractive index at the Na-D line (589 nm) and at 20°C in the range of from 1.48 to 1.54.

Claim 13: Light-guide body according to Claim 1, wherein the light-guiding layer has a transmission according to DIN 5036 in the range of from 75 to 92%.

Claim 14: Light-guide body according to Claim 1, wherein the light-exit surface is perpendicular to the light-entry surface.

Claim 15: Light-guide body according to Claim 1, wherein at least one surface, which is parallel to the light-entry surface, is configured with a reflective layer.

Claim 16: Process for producing a light-guide body according to Claim 1, wherein a molding composition having at least 60% by weight, expressed in terms of the weight of the molding composition, of polymethyl methacrylate and from 0.0001 to 0.2% by weight, expressed in terms of the weight of the molding composition, of spherical particles with an average diameter in the range of from 0.7 to 40 μm , is thermoplastically molded.

Claim 17: Process for producing a light-guide body according to Claim 1, wherein an acrylic resin having

A) 0.0001 - 0.2% by weight of spherical particles with an average diameter in the range of from 0.7 to 40 μm ,

B) 40 – 99.9999% by weight of methyl methacrylate,

C) 0 – 59.9999% by weight of comonomers,

D) 0 – 59.9999% by weight of polymers soluble in (B) or (C),

the components A) to D) adding up to 100%, is radical-polymerized.

Claim 18: Device for indirect lighting having at least one light-guide body according to Claim 1, and a light source, which can illuminate the light-entry surface of the light-guide body.

Claim 19: Light-guide body according to Claim 1, wherein said depth is from 1 μm to 100 μm .

Claim 20: Light-guide body according to Claim 4, wherein the barium sulfate particles are present.

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EVIDENCE APPENDIX

None.

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RELATED PROCEEDINGS APPENDIX

None.